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PAULEY PETERSEN & ERICKSON
2800 WEST HIGGINS ROAD
SUITE 365
HOFFMAN ESTATES, IL 60169

EXAMINER	
BANH, DAVID H	
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2854	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,766	SCHULTHEIS ET AL.	
	Examiner	Art Unit	
	DAVID BANH	2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,11,13-15,17,18,20-24,26,28-30,32,33 and 37-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3,11,13-15,17,18,20-24,26,28-30,32,33 and 37-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on February 12, 2010 have been fully considered but they are not persuasive. Applicant first argues in page 12 of the Remarks, that the printer **10** of Fig. 10 does not "disclose or suggest Applicants' recited structural element of a 'transfer medium comprising one of a transfer roller or a transfer belt and including a contact face having a temperature lower than a surface of each of the heated substrates entering the transfer zone'". Examiner disagrees.

De Bock et al. teaches a transfer medium being a transfer belt **146** which has a contact face, being the surface of the belt **146**, the temperature of the belt at a certain position after cooling by cooling means **110** being about room temperature (column 4, lines 4-15). The temperature of the heated substrate **28** is above room temperature as it is heated by heating elements **70** and is thus above room temperature (see Fig. 10). Thus the transfer medium has a contact face with a temperature lower than a surface of each of the heated substrates entering the transfer zone.

Applicant argues that the De Bock et al. reference does not disclose glass paste particles mixed into a plastic toner. Examiner disagrees. De Bock et al. teaches a mixture thermoplastic materials with a glass transition temperature and colorants (column 6, lines 20-40); plastics are regularly considered glass within the broadest reasonable interpretation. Paragraph 12 of the present Application even describes the print medium (toner) as a matrix of thermoplastic material, into which organic or inorganic color pigments and/or glassy paste particles can be introduced.

Applicant argues that De Bock et al. does not disclose a transport system comprising a plurality of roller bodies disposed in a horizontal configuration in a transfer zone beneath the transfer medium and on which each of the substrates is supported and transferred through the transfer zone. This limitation is not found within claim 37, but rather dependent claim 40. Fig. 11 shows a modification of Fig. 10 (see column 14, lines 15-20). In Fig. 11, the transport system comprises a plurality of roller bodies arranged in a line for transporting a plurality of sheet substrates through the transfer zone. The rollers are disposed to carry the sheet substrate and appear both above and below the sheets; rollers are disposed in a horizontal configuration from right to left and additionally, the transport rollers nearest the nip between rollers **43, 150** can be considered horizontally oriented if the page is turned sideways. A change in the orientation of the drawing corresponding to the orientation of the printer of Fig. 11 does not structurally modify the printer of Fig. 11.

Applicant argues that “the De Bock et al. Patent discloses neither a toner for nor a transport system that can transport a glass or thick and rigid plastic substrate". However, De Bock et al. teaches that the substrate may be "adhesive labels carried on a plastics material backing sheet" (see column 10, lines 60-62). Thus, De Bock et al. teaches the limitation that the substrate is a plastic substrate. It is not recited in the claims that the substrate must be thick or rigid. Nevertheless, De Bock et al. discloses that its invention may be directed to thicker and less flexible, and thus more rigid, substrates (see column 11, lines 10-12). Finally, De Bock et al. discloses that its

invention may be directed to printing upon individual sheets rather than a web (see column 11, lines 5-7)

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 37 and dependent claims 2, 3, 11, 20-24, 26, 30, 32, 33 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by De Bock et al. (US Patent 5,893,018).

For independent claim 37: De Bock et al. teaches a printing device **10** (see Fig. 11) comprising a supply of toner powder comprising glass particles in a plastic toner powder mix (see column 6, lines 20-40, a combination thermoplastic resin is taught, which is a plastic toner powder mix, the thermoplastic resin is heated above a glass transition temperature, see Abstract, which makes it glassy), an electrophotographic print unit **18, 20, 22, 24** (see Fig. 11) including a photoconductor roller (see Fig. 11, rollers associated with each print unit) and column 5, lines 66-67, rotatable endless surface means), a charge station for imparting charge to the roller (see column 5, lines 66-67 and column 6, lines 1-10, means for forming an electrostatic latent image), and a developer unit for applying the toner powder to charged areas of the photoconductor roller (see column 6, lines 1-5, means for developing), a transfer medium **146** for transferring the toner powder from the photoconductor roller to a transfer zone (see Fig.

11, nip between rollers **43, 150**), a transport system **269** for sequentially conducting a plurality of distinct plastic substrates **265** through the transfer zone (see column 11, lines 10-12 for distinct sheets, and column 10, lines 60-62 for plastic sheets), at least one heating elements **70** arranged upstream of the transfer medium **146** in a transport direction of the substrates **269** (see column 21, lines 1-16, Fig. 11 is a modification of Fig. 10, which has heating elements **70** shown), the transfer medium comprising a transfer belt **146** including a contact face having a temperature lower than a surface of each of the heated substrates entering the transfer zone (see column 4, lines 4-15, the transfer member is cooled to about room temperature, the substrates are heated, so the room temperature portion of the transfer belt has a lower temperature than the surface of the heated substrate at the transfer zone), and a cooling device **110** assigned to the transfer medium **146** which removes heat from the contact face downstream of the transfer zone (see Fig. 11).

For claims 2 and 3: De Bock et al. teaches the printing device of claim 37 wherein the contact face has a temperature under 40 degrees Celsius (see column 4, lines 4-15, room temperature is about 25 Celsius, 40 degrees Celsius is also under 60 Celsius).

For claim 11: De Bock et al. teaches the printing device of claim 37 wherein the surface temperature of the substrate **28** is 100 degrees to 170 degrees Celsius in at least certain areas (see column 10, lines 25-30, the temperature of the substrate is raised to 100 degrees Celsius).

For claim 20: De Bock et al. teaches the printing device of claim 37 wherein the toner transfer in the transfer zone is affected by at least one corona (see column 19, lines 50-68, the transfer medium **146** in one embodiment is a charged metal which thus has a corona which is present at toner transfer in the transfer zone).

For claim 21: De Bock et al. teaches the printing device of claim 37 wherein the substrate **269** is placed on an electrically conductive base (at the transfer zone, see column 19, lines 50-68, and Fig. 10, the substrate is on the transfer medium which is a metal, which is electrically conductive) and the base is a charged with a reverse polarity of the toner (given a charged toner on a conductive base, the laws of forces and electromagnetism will cause charges opposite the charge of the toner to accumulate near the toner and like charges to move to a distal end, thus the base will have a reverse polarity near the toner).

For claim 22: De Bock et al. teaches the printing device of claims 37 wherein the each of the substrates **269** is moved beyond the transfer medium synchronously with respect to a circumferential speed of the transfer medium **146** by transport system (transport system **30, 32, 34, 36** can be moved at the same speed as transfer medium **146** with rollers **14, 16, 150, 152**) and a charge with an opposite polarity relative to a second charge of the toner is applied to the transfer medium **146** in the transport system (already a charge is applied to the transfer medium **146** as taught in column 19, lines 50-68; for the transfer medium **146** to be operational in attracting and transferring toner, the charge must be opposite the charge of the toner, see column 15, lines 30-35, directed to a different embodiment but establishing the scientific concept from physics).

For claim 23: De Bock et al. teaches the printing device of claim 37 wherein on a surface which receives the toner powder, the transfer medium **146** has an anti-adhesive layer (see column 19, lines 50-68, this teaches that the transfer medium has a silicon elastomer on top of the metal base), and the anti-adhesive layer has a surface energy within a range of 15 micro-Newtons per meter and 30 micro-Newtons per meter (see column 4, lines 40-45, the silicon elastomer has a surface energy of 20 dynes per centimeter, which is 20 micro-Newtons per meter, since it has the appropriate surface energy, it is appropriately anti-adhesive).

For claim 24: De Bock et al. teaches the printing device of claims 37 wherein the at least one heating element **70** designed as an infrared radiator or a hot air blower by application of flame (see column 16, lines 64-67, the heater **70** is an infrared radiant heater pair).

For claim 26: De Bock et al. teaches the printing device of claim 37 wherein the heating element **70** heats the surface of each substrate **28** to a temperature between 80 degrees Celsius and 200 degrees Celsius (the heater **70** is capable of raising the temperature of the surface to between these ranges, other heaters in the invention produce temperatures in this range, see column 3, lines 60-65, see column 10, lines 25-30, the temperature of the substrate is raised to 100 degrees Celsius here, with the heater contributing).

For claim 30: De Bock et al. teaches the printing device of claim 37 wherein a climate controlled air flow is directed at the surface of the transfer medium **146** (see column 20, lines 25-30, the cooling device **110** sprays cold air).

For claim 32: De Bock et al. teaches the printing device of claim 37 wherein the cooling device **110** removes heat from the transfer medium **146** downstream of the transfer zone and upstream of the photoconductor (see Fig. 10, **110** is positioned downstream of transfer zone and upstream of photoconductor).

For claim 33: De Bock et al. teaches the printing device of claim 37 wherein the cooling device **110** removes heat from the transfer medium **146** which cools the toner powder (the cooling device **110**, in column 20, lines 25-30 sprays cold air at the transfer medium **146** and thus cools it, which thus must produce some cooling effect on the toner downstream, the prevention of the toner powder from adherence to a surface of the medium **146** is an intended use, since the reference teaches all of the structure of the apparatus, the function is implied to be performable).

For claim 40: De Bock et al. teaches the printer of claim 37 wherein the transport system comprising a plurality of roller bodies disposed in the horizontal configuration (see Fig. 11, turning the figure sidewise, the rollers along the central movement path of the substrate through the transfer zone between rollers **43, 150** would then be horizontal).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Bock et al. De Bock et al., in a single embodiment, does not teach that the transfer medium is a transfer roller with interior air cooling. However, De Bock et al. teaches that the use of a transfer belt and a transfer roller are equivalents (see column 4, lines 45-52) and that a cooling means can comprise interior air cooling of rolls in the transfer medium (column 21, lines 35-45, cooling may be caused by internal fluid cooling, air is a fluid, although water is a better conductor of heat). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute incorporate a transfer roller with interior air cooling as the transfer system as a known equivalent to a belt system and blown air cooling for the purpose of transporting the electrostatic image to the substrate and to cool the transport medium prior to the contact with the electrostatic image.

5. Claims 13, 28, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Bock et al. (US Patent 5,893,018) in view of Masuda et al. (US PG Pub 2002/0159785).

For claims 13 and 28: De Bock et al. teaches all of the limitations of claim 13 and 28 except that a plurality of temperature sensors are arranged over a print width of the transport system and one of a plurality of heating elements is assigned to each of the temperature sensors and a heating output is separately controlled within zones over the print width. However, Masuda et al. teaches a plurality of temperature sensors **30, 40** arranged over the print width (see Fig. 1, and paragraphs 38-40, the sensors are arranged over the print width) of a transport system **26, 30** and one of a plurality of

heating elements **28, 38** is assigned to each of the temperature sensors (see Fig. 1, sensor **30** to element **28** and sensor **40** to element **38**) and a heating output is separately controlled within zones over a print width (see paragraph 32, the member **28** can comprise a plurality of lamps which are individually controlled which will control the heating output in zones over the print width, but not necessarily differing across the print width). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a plurality of sensors and a plurality of heating elements corresponding to the sensors wherein a output is controlled within zones over the print width as taught by Masuda et al. in the printer system of De Bock et al. for the purpose of controlling the amount of heating of the substrate.

For claim 38: De Bock et al. teaches all of the limitations of claim 38 except that a temperature sensor is arranged between the heating element and the transfer medium for monitoring the temperature of the substrates. However, Masuda et al. teaches a temperature sensor **30** assigned to a substrate **P** arranged between a heating element **28** and a transfer zone and transfer medium **12** for measuring the temperature of the substrate **P** and controlling the heating element **38** (see paragraphs 35-37, the sensor emits the signal to controller **42** which controls heating element **38** based on the signal, see Fig. 1, the sensor **30** is arranged past between the leading edge of the heating element **38** and the transfer medium **12**). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a temperature sensor for the substrates being heated as taught by Masuda et al. with the heating

element **70** for substrates of De Bock et al. for the purpose of controlling the heating of substrates to ensure that the temperatures after heating remain in a target range.

For claim 39: The combination of De Bock et al. as modified by Masuda et al. teaches the printing device according to claim 38 and Masuda et al. further teaches that the heating element and the transport system are controlled by a control device as a function of the signal emitted from the temperature sensor (see paragraph 8, a controller controls the heating member as a function of the detected temperature, and paragraph 12, the paper conveyer may be controlled a controller based on the temperature as well).

6. Claims 14, 15, 18 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Bock et al. (US Patent 5,893,018) and Masuda et al. (US PG Pub 2002/0159785) as applied to claim 13 and 28 above, and further in view of Behnke et al. (US PG Pub 2002/0088799).

For claims 14 and 29: The combination of De Bock et al. and Masuda et al. teaches all of the limitations of claims 14 and 29 except that the temperature sensor is a pyrometer. However, Behnke et al. teaches the use of a pyrometer as a temperature sensor for detecting the temperature of a substrate (see paragraph 24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a pyrometer taught by Behnke et al. for the temperature sensor in the invention of De Bock et al. as modified by Masuda et al. to achieve the predictable result of measuring the temperature of the substrate for the purpose of preventing the substrate from reaching excessive temperatures and damaging the final product.

For claim 15: The combination of De Bock et al., Masuda et al. and Behnke et al. teaches the printing device of claim 14 and De Bock et al. teaches a climate controlled air flow directed onto the surface of the transfer medium **146** as the cooling device **110** (see column 20, lines 25-30, the cooling device **110** sprays cold air).

For claim 18: The combination of De Bock et al., Masuda et al. and Behnke et al. teaches the printing device of claim 15 and De Bock et al. teaches that the cooling device **110** removes energy from the transfer medium **146** downstream of the transfer zone and upstream of the photoconductor (see Fig. 10).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID BANH whose telephone number is (571)270-3851. The examiner can normally be reached on M-F 9:30AM - 8PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571)272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DHB

/Judy Nguyen/
Supervisory Patent Examiner, Art Unit 2854